

Claims

- [c1] A vehicular mirror system comprising:
a reflective element having a mounting portion thereon;
an actuator operably interconnected to the reflective element for controlling the tilt of the reflective element, wherein the actuator is operable in a normal range of travel; and
a clutch associated with the actuator for operation of the actuator in a first mode and a second mode, wherein in the first mode the actuator moves in a normal mode of operation and actuates the tilt of the reflective element, and wherein in the second mode the actuator is placed in an impeded mode of operation and the clutch allows the actuator to slip and prevent damage thereto.
- [c2] The vehicular mirror system according to claim 1, wherein one of the mounting portion and the actuator comprises a socket, and the other of the mounting portion and the actuator comprises a ball.
- [c3] The vehicular mirror system according to claim 2, wherein the ball is snap-fit within the socket.
- [c4] The vehicular mirror system according to claim 3,

wherein the ball is non-rotatably mounted within the socket.

[c5] The vehicular mirror system according to claim 4, wherein the ball comprises at least one projection, and wherein the socket comprises at least one slot in register with the at least one projection.

[c6] The vehicular mirror system according to claim 5, wherein the at least one projection is received within the at least one slot when the ball is received within the socket.

[c7] The vehicular mirror system according to claim 2, and further comprising a compression member mounted around the socket to apply a compression force on the ball.

[c8] The vehicular mirror system according to claim 7, wherein the compression member comprises a spring wrapped around the periphery of the socket.

[c9] The vehicular mirror system according to claim 7, wherein the compression member comprises a ring.

[c10] The vehicular mirror system according to claim 7, wherein the compression member comprises a triangular compression ring.

- [c11] The vehicular mirror system according to claim 7, wherein the compression member comprises a C-ring.
- [c12] The vehicular mirror system according to claim 7, wherein the socket has a peripheral groove on an external surface thereof.
- [c13] The vehicular mirror system according to claim 12, wherein the compression member is disposed within the peripheral groove.
- [c14] The vehicular mirror system according to claim 7, wherein the compression force is preselected to apply a sufficient frictional force between the ball and the socket to enable the ball to rotate with respect to the socket during travel in the normal range of movement, but to slip with respect to the socket when the actuator is urged beyond the normal range of travel.
- [c15] The vehicular mirror system according to claim 1, wherein the actuator comprises a first portion and a second portion, wherein the first portion is non-rotatably mounted to the mounting portion of the reflective element, and the clutch is disposed between the first and second portions to allow movement of the first portion with respect to the second portion during operation in the first mode.

- [c16] The vehicular mirror system according to claim 15, wherein the clutch allows slip between the first and second portions when the actuator is operated in the second mode.
- [c17] The vehicular mirror system according to claim 15, wherein the first portion comprises an elongated member having a first end and a second end.
- [c18] The vehicular mirror system according to claim 17, wherein the first end of the first portion is non-rotatably received by the reflective element.
- [c19] The vehicular mirror system according to claim 17, wherein the second end of the first portion is received by the second portion.
- [c20] The vehicular mirror system according to claim 15, wherein the second portion comprises an annular member having an external gear portion which is driven by a motive source.
- [c21] The vehicular mirror system according to claim 15, wherein the first portion is threadingly received by the second portion, wherein driven rotation of the second portion is transferred to the first portion during the normal range of travel.

- [c22] The vehicular mirror system according to claim 21, wherein the threads have a pitch that enables the second portion to rotate relative to the first portion when the first portion is urged toward the second portion by an external force.
- [c23] The vehicular mirror system according to claim 15, wherein the first portion is mounted to the second portion by the clutch which slips when the first portion is driven beyond the normal range of travel.
- [c24] The vehicular mirror system according to claim 15, wherein the first portion has a first bearing surface, the second portion has a second bearing surface, and the clutch comprises a spring which frictionally forces the first and second bearing surfaces to travel together during operation in the first mode.
- [c25] The vehicular mirror system according to claim 24, wherein the spring is selected to allow the first and second bearing surfaces to slip with respect to one another when the actuator is operated in the second mode.